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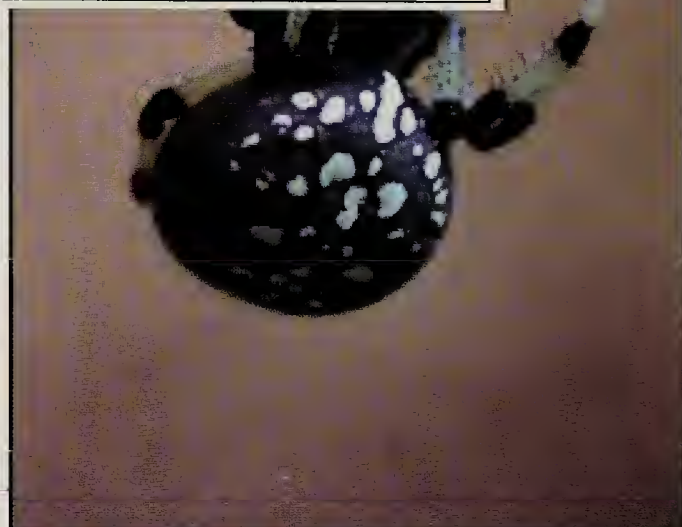


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SEPTEMBER 2009 MYSTERY PHOTOS: Calling all entomologists and arachnophiles! We've lost our field guides – please help us to identify these handsome critters, photographed in late summer in Grasslands National Park, SK.



Figure 3. Bird skins from the Royal Saskatchewan Museum of a Connecticut Warbler (top), the putative Connecticut Warbler female (middle) collected 29 June 1951 by Fred W. Lahrman at Madge Lake, SK (RSM #10261/A2113), and a Mourning Warbler female (bottom). Note the clear difference in wing length between the top and middle specimens. See article by Underwood et al. on page 138.

Glenn C. Sutter

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Front cover: Rufous morph of the Eastern Screech-Owl. For more on screech-owl colour morphs, see article by Artuso (page 131).

Christian Artuso

Back cover: Storm clouds near Last Mountain Lake, SK.

Mark Brigham

THIS ORGANIZATION RECEIVES FUNDING FROM:



EDITORS' MESSAGE

We would like to extend hearty congratulations to Nature Saskatchewan for 60 years of advancing natural history knowledge and conserving biodiversity in our province. We sincerely hope that this organization continues its mission, including publication of *Blue Jay*, in perpetuity. The next 60 years will be just as important and exciting as the first 60, and we look forward to seeing Nature Saskatchewan continue to build its legacy. Throughout this issue, you will find photos from Nature Saskatchewan's 60th anniversary celebrations, which took place from 29-31 May 2009.

Having been at the helm of *Blue Jay* for several issues now, it is with pleasure and excitement that we would like to introduce readers to a new category of publication: the Photo Note. In addition to written articles and other traditional *Blue Jay* materials, we would now like to invite contributors to also submit their rare, unusual, spectacular, informative, or otherwise interesting natural history

photographs along with a short written paragraph explaining important natural history aspects related to the picture. We included several examples of Photo Notes in Volume 67, Issue 2 (June 2009): unusual weather in the Cypress Hills (p. 96) ; a rare photo of a male and female Short-horned Lizard together following copulation (p. 113); and a rare sighting of a Slaty-backed Gull and an American Dipper in Saskatoon (p. 114). In future issues, Photo Notes will be listed by subject matter in the table of contents in each issue of *Blue Jay*. Natural history photography buffs – this is your chance to shine! Of course, we encourage our readers to continue submitting all photos; in particular, in order to continue the popular Mystery Photo column, we rely on your submissions.

Lastly, we sincerely thank Teresa Dolman for undertaking the colossal task of organizing the 1990-1999 *Blue Jay* Index, which comprises most of this issue.

MYSTERY PHOTO

SEPTEMBER 2009 MYSTERY PHOTO

See inside front cover, top.

ANSWER TO JUNE 2009 MYSTERY PHOTO

Lauren Mang of Regina provided the following solution: "I think this is the nest and nestling of an Eastern Phoebe. The nest looks just like an Eastern Phoebe nest under the eaves of the garage at my farm this summer. It has the same type of nesting material with moss incorporated into it. The fledgling looks the same also."

Indeed, when we took the photo of the nestling, the parent was busy flying in and

out of the outhouse to provision the chick. Although we did not get a particularly good view of the adult, we also suspected that it was an Eastern Phoebe. Lauren's assessment of the nest strongly supports our conclusion. Many thanks to Lauren for sending the response.



EASTERN SCREECH-OWL IN MANITOBA: EVIDENCE OF TWENTIETH- CENTURY RANGE EXPANSION

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Introduction

Southern Manitoba to 52°N represents the northern range limit of the Eastern Screech-Owl; however, Manitoba may not have been a part of this species' range prior to the late 19th century.²⁰ The first confirmed records of the Eastern Screech-Owl in Manitoba are from the early 1920s. Hamilton Laing found this species at Oak Lake in 1921 (specimens CMNAV 17082 and 17193 at the Canadian Museum of Nature), and Norman Criddle recorded screech-owls at Aweme in 1922.¹⁹ There is no species account for the (Eastern) Screech-Owl in Ernest Thompson Seton's *Birds of Manitoba*, although he recorded other secretive small owls, e.g. Northern Saw-whet Owl, which he described as a rare resident; Boreal Owl, which he described as a probable resident and winter visitor; and Long-eared Owl, which he described as "tolerably common".²¹ Nonetheless, under the account of the Northern Saw-whet Owl, Seton mentions that R. H. Hunter "claims" to have seen and heard screech-owls in Saboskong Bay and Point du Chêne in 1871, the implication being that Seton treated these records as hypothetical.²¹ The lack of early records of a species that resides in close proximity to humans suggests that screech-owls were either absent or rare in Manitoba in the early 20th century. Taverner concluded that this species was a new arrival,¹⁹ and others noted

an increased density of screech-owls in Manitoba in the 1930s; for example, Rutherford wrote that "[t]his 'little horned owl' is becoming increasingly common in the greater Winnipeg district",¹⁶ and Cartwright stated that they were "now quite common in the timber along the Red and Assiniboine Rivers".⁵ Despite these suggestions, the possibility remains that screech-owls were initially overlooked, perhaps because they were scarce.

Within the last 50 years, Eastern Screech-Owls have expanded their range into the Swan River area of Manitoba as far as 52°N, from a previous northern limit of ca. 50°N.²³ This demonstrates the species' capacity to colonize new areas. There are a few recent records in coniferous or mixed forest in areas such as Bird's Hill Provincial Park and even as far north as the Duck Mountains (single record on 12 April 2002; B. Walley and P. Letain, pers. comm.). An extraordinary extralimital record of a gray adult seen by nine observers occurred on 14 June 1998 at Pisew Falls (above 55°N; S. Clubb, pers. comm.). It is possible that this species is becoming increasingly adapted to the transition zone between the boreal biome and woodlands of a more deciduous nature. A similar phenomenon has been suggested for Barred Owl,³ a species first recorded in Manitoba in 1886,¹⁷ which may have arrived in the province at a

similar time as Eastern Screech-Owls,¹⁰ and whose recent range expansion is well documented and dramatic.¹³

One source of evidence supporting the hypothesis of range expansion may lie in the relative abundance of the color morphs: gray (Fig. 1, see inside back cover), rufous (see front cover), and intermediate or "brown", the former being common in Manitoba while the latter two are rare. This evidence relies on the fact that rufous morph screech-owls are more susceptible to cold temperatures and have a higher mortality, by as much as 40%, when temperatures fall to -5° and -10°C .¹⁵ In northern Ohio, the percentage of rufous birds fell from 23.3% to 14.7% in the severe winter of 1951 (lowest temperatures and highest snowfall during a 30-year study).²² Following a record freeze in Texas, rufous birds declined from 8.4% of the nesting population in 1983 to 4.2% in 1987 in one study area and from 23.3% to 16.1% in another.⁶ Gray plumage contains more melanin than rufous plumage and has better thermoregulatory properties and greater resistance to abrasion by dust particles.^{6, 7, 22} In other polychromatic species, e.g., Ruffed Grouse, gray morph birds also fare better than rufous ones in cold climates.⁸ At the northern limit of their range in Finland, gray morph Tawny Owls constitute 70% of the population, and gray males have a longer breeding lifespan and higher lifetime recruitment (offspring that survive to breed) than brown males.⁴ Gehlbach noted that although gray owls are more difficult to see in full sunlight, rufous birds are more cryptic in cloudy or humid conditions because red light is filtered out in subdued lighting and is scattered by water vapor.⁶ Because of the nocturnal and crepuscular habits of Eastern Screech-Owls, rufous plumage should be selected for in warm, humid environments. Rufous is dominant to gray genetically because gray \times gray

pairings always produce all gray offspring, whereas rufous \times rufous pairing produce ca. 25% gray young.^{6, 22} Based on the evidence of different thermoregulatory properties of rufous and gray plumage, I hypothesized that if the Eastern Screech-Owl had expanded its range into Manitoba, there should have been a decrease in the percentage of rufous birds over time due to lower survivorship.

Methods

I assembled a database of Eastern Screech-Owl records in Manitoba from 1921 – 2007, and a comparative database from northern Minnesota and North Dakota from 1883 – 2007. Northern Minnesota is defined here as the area above a line across the southern border of Wilkin County to the southern border of Grant - Douglas - Todd - Morrison - Mille Lacs - Kanabec - Pine counties. This corresponds roughly in latitude to the border between North and South Dakota. I chose this area because of its location directly south of Manitoba and because it worked as a convenient unit from where I could assemble a reasonable number of records. Records from southern Minnesota were excluded, as the considerably milder climate there would be predicted to hold a higher percentage of rufous morph screech-owls. The database from northern Minnesota is from a similar set of sources. Care was taken to cross-reference all data gathered to ensure that sightings of individual owls were not duplicated. These records were then grouped by decade and the percentage of rufous morph birds calculated per period. Nearly three-quarters (74%) are sight records from either published sources or from personal communication.

Unfortunately, 783 records (39% of the database) could not be assigned a color morph either because they were only heard or because this information was not provided. After grouping the

data by decade, I therefore calculated two percentages: firstly, the number of rufous birds as a percentage of the total number of records of individual birds and secondly the number of rufous birds as a percentage of the total number of records where the morph is clearly specified (hereafter “ms”). Rufous Eastern Screech-Owls are unusual in Manitoba, and to a lesser extent in northern Minnesota and North Dakota, and there is a tendency for observers to report their color, whereas many fail to comment on the color of gray birds. Therefore, the majority of birds in the “morph unknown” category are probably gray. I believe for this reason that the best estimate of the percentage of rufous birds lies somewhere in between the two types of percentages calculated, probably closer to the former (i.e. the lower end). Brown birds are also underreported, as it is difficult to distinguish this intermediate form from gray, even in specimens where intermediate characteristics, feather wear, fading, and foxing (browns become brighter or redder over time) must be considered. In fact, most gray specimens and living screech-owls that I have seen in Manitoba have had a small amount of rufous in the plumage, especially on the tarsi; as a central vertical band through

the ear tufts; in the barring and cross-barring on the breast, belly, and flanks (Fig. 2, see inside back cover); or as a subtle wash across the underparts, nuchal collar, mantle, or wing coverts.

The dataset for Minnesota and North Dakota suffers from a very small sample size, in particular from 1940 – 1960. The lower number of records from Minnesota and North Dakota compared to Manitoba is not reflective of lower owl densities but rather of difficulties in collecting data from afar. To compensate for small sample sizes, I averaged the two percentages (rufous morph birds against all individuals and rufous morph birds against individuals where color was specified) as a way of obtaining a fairer means of comparison to the Manitoba data. I also averaged the Manitoba percentages in the same way.

Results

The Manitoba database consists of over 1700 records representing 1399 individuals from numerous sources including published references, oologists’ sets, museum specimens, nest cards, rehabilitated birds, applications for taxidermy permits, Christmas Bird Counts, the Manitoba Nocturnal Owl Survey, and

Table 1. Data sources for Eastern Screech-Owl records in Manitoba, northern Minnesota, and North Dakota from 1886 - 2007 after removal of possible repeat sightings. Numbers in parentheses are percentages of the color morphs against the total for each category. See text for definition of northern Minnesota.

	Adults	Juveniles	Gray	Brown	Rufous	Unknown	TOTALS
Manitoba							
Sight records	709	438	785 (68.4)	17 (1.5)	27 (2.4)	316 (27.6)	1147
Specimen / dead	118	6	95 (76.6)	14 (11.3)	6 (4.8)	9 (7.3)	124
Heard only	93	0	0	0	0	93 (100)	93
Banded or rehab	1	0	1 (100)	0	0	0	1
Total	945	454	887 (63.4)	32 (2.3)	33 (2.4)	445 (31.8)	1399
Northern MN and ND							
Sight records	263	81	152 (44.2)	1 (0.3)	32 (9.3)	159 (46.2)	344
Specimen / dead	80	7	59 (67.8)	4 (4.6)	21 (24.1)	3 (3.4)	87
Heard only	175	0	0	0	0	175 (100)	175
Banded or rehab	5	0	4 (80)	0	0	1 (20)	5
Total	523	88	215 (35.2)	5 (0.8)	53 (8.7)	338 (55.3)	611
TOTAL	1457	497	1053	35	84	780	1954

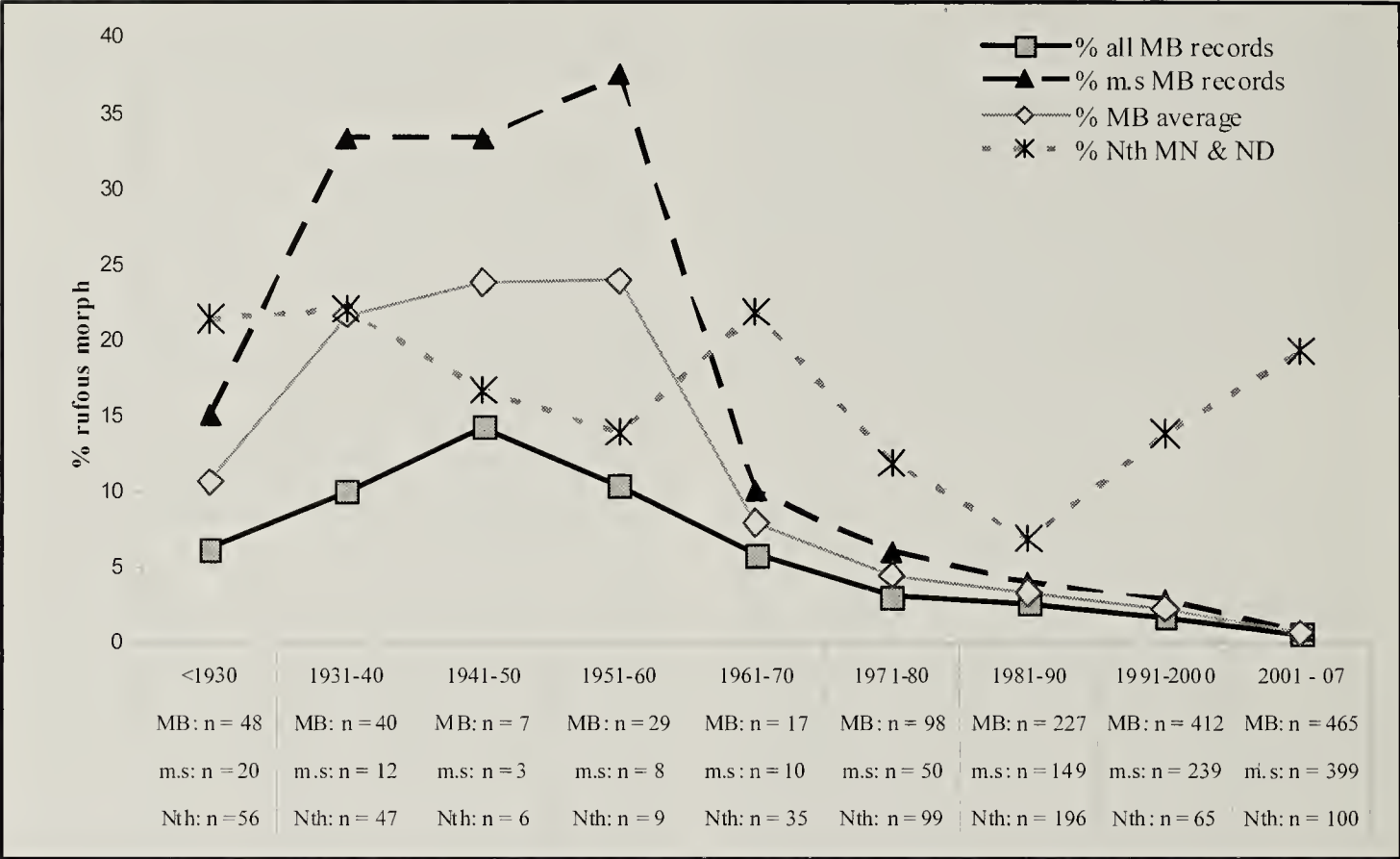


Figure 3. Percentage of rufous morph Eastern Screech-Owls recorded in Manitoba by decade (% of total number of birds recorded and of total number of records where color morph is specified [ms]) and in North Dakota and northern Minnesota (Nth; average of the % of total number of birds recorded and of total number of records where morph is specified).

personal communication from observers (Table 1). When the whole database is considered and records where color was not specified (the “Unknown” column) are excluded, 93% of the Manitoba population is gray and 3.5% is rufous, whereas in northern Minnesota and North Dakota 79% are gray and 19% are rufous (Table 1).

The data suggest that prior to the 1930s, rufous morph birds constituted approximately 6.25 – 10.63% (average % of all records and % ms) of the Manitoba population. Today <1% of Eastern Screech-Owls in Manitoba are rufous (Fig. 3). When plotted by decade, rufous morph birds appear to have increased in the period from 1930 – 1960 but then decline steadily and gradually from the 1960s to 2005. In northern Minnesota and North Dakota, the percentage of rufous birds appears to

have fluctuated considerably but has not otherwise changed greatly between the period prior to 1930 (21%) and the 2001 – 2007 period (19%).

Discussion

The data suffer potential biases such as unequal small sample sizes by period and inconsistency in the ratio of specimens to sight observations and must be treated with caution. The end points of the graph (<1930 versus 2001 – 2007) suggest different overall trends between Manitoba (a decline in rufous morph birds) and northern Minnesota and North Dakota (minimal change despite some fluctuation). However, problems arise in interpreting trends in the intervening years where sample sizes are small, in particular the period from 1930 – 1960, which in Manitoba at least shows an increase in rufous owls. One possible explanation for this increase lies in the

different data collection practices during and in proximity to WWII, which may have influenced these results. During this period, specimen and egg collecting declined in popularity, and the number of field observations is low. Many of the birds reported from this period were found dead or injured, often in barns or on farmsteads. Since rufous birds are more susceptible to cold, their numbers would be unnaturally inflated by a sample collected in this manner, especially in the small sample available from this period. The data support this contention since the percentage of rufous birds from specimens only for this period is higher than the same percentage calculated from sight records only (Manitoba ms data set: 3.2% of sight records rufous versus 5.2% of specimens, U.S. ms data set: 17.3% of sight records rufous versus 25% of specimens). Unfortunately, the various types of records in this data set are not evenly distributed, with more specimens in the earlier part of the 20th century and more sight records in the latter half.

The data from the U.S. as presented in Fig. 3 suggest large variation in the percentage of rufous birds by decade. In addition to smaller sample sizes, for the most part, than the Manitoba data, the U.S. data include an extremely high number of morph-unspecified records (53%) compared to the Manitoba dataset (33%). Some of the variation in this part of the graph may therefore be a product of data biases, while some of this variation may reflect changes in the survival rates of rufous birds following particularly cold winters.^{6, 22} Given the poor suitability of the data for statistical analysis, I cannot be sure if the trends noted are significant.

Unlike the U.S. data, the Manitoba data show a consistent decline in rufous birds for the period where sample sizes are highest (1971 – 2007) and, despite the difficulty of interpreting earlier trends,

support the hypothesis of a decline in rufous Eastern Screech-Owls in Manitoba to near monochromatism due to their poor suitability to the local climate.

If the Eastern Screech-Owl has extended its range into Manitoba, the most significant factor in this expansion is likely to be anthropogenic habitat change. Larger human settlements have brought with them the planting of trees around homesteads and shelterbelts in areas of prairie grassland formerly inhospitable to a woodland species such as the Eastern Screech-Owl.²⁰ Many trees in Manitoba may now be larger than in previous centuries, especially in proximity to human habitation due to watering and heat-island effects. During the 20th century, there have been both increased plant growth at mid- to high latitudes (45°N and 70°N) and a lengthened growing season.²⁴ Tree phenology has changed, with some species blooming or budding weeks earlier,²⁴ and with some species in southeastern Manitoba becoming hardier.¹⁴ Larger trees are more likely to produce cavities of sufficient size for screech-owls and the open understory they prefer for hunting. Buildings on the landscape may also have assisted in range expansion, providing both shelter and access to prey, ensuring greater likelihood of winter survival at the range periphery.^{1, 9, 23} An additional benefit to Eastern Screech-Owls is the placement of nest boxes (usually for Wood Ducks), which they readily use as nest and roost sites. The earliest record of Eastern Screech-Owls breeding in a nest box in Manitoba is 1928 (nest card).

The current distribution of the Eastern Screech-Owl in Manitoba is somewhat, but not entirely, linked with human settlement. Eastern Screech-Owls have higher population densities in suburban Winnipeg than in rural areas, producing larger broods and beginning breeding

earlier in the year.² Available habitat in suburbs close to rivers or creeks with mature trees matches many of their habitat selection preferences, including a relatively open subcanopy and middle story, many potential nest sites, some planted conifers (frequently used as roost sites by breeding males), and tall trees with little shrub density below them.² Suburbs also have lower densities of Great-horned Owls and raccoons despite higher densities of domestic cats,² and a greater diversity of prey with access to invertebrate prey earlier in the breeding season.² Only one of 52 nests that I found between 2004 and 2007 was in "wildlands", i.e. <1 human resident per hectare.²

Another factor that may have assisted the Eastern Screech-Owl to spread northward is the introduction of certain prey items of Palearctic origin in the late 19th century, in particular the House Sparrow,²⁰ which was first recorded in the province in 1892.¹⁸ The strongest evidence for this is the apparent importance of the House Sparrow and the Rock Pigeon (captured in barns presumably along with rodents) for winter survival in the Dauphin area.²³ Nonetheless, in the Winnipeg area, no introduced prey item is consumed nearly as frequently as the native Meadow Vole, which comprises 35% of all vertebrate captures year round and 32% in winter. The introduced earthworm *Lumbricus terrestris* (commonly called "night crawler"), often captured in watered lawns and gardens, is summer prey only.² Probably more important to screech-owls are concentrations of prey, as may occur around fallen birdseed or at avian communal roosts.

The decline in rufous morph birds in Manitoba over the course of the 20th century from similar percentages to those found in North Dakota and northern Minnesota to near monochromatism today

supports the hypothesis of 20th-century range expansion into southern Manitoba. In addition to Eastern Screech-Owls, a number of eastern woodland species have apparently undergone similar north or northwestward expansion, including Wood Duck, American Woodcock, Barred Owl, Red-headed Woodpecker, Yellow-throated Vireo, Purple Martin, Golden-winged Warbler, Eastern Bluebird, and Indigo Bunting,²⁰ as well as mammals such as raccoons.¹² Many of these species have some similar habitat requirements to Eastern Screech-Owls, including cavity nest sites and/or a partially open understory for foraging. Although the causes may differ with individual species, a trend of north and northwestern expansion, possibly coupled with the disturbance of prairie habitat, is implied in the early 20th century in southern Manitoba, and more generally in North America.¹¹ The context and mechanisms of range expansion in the northern prairie region therefore warrant further investigation.

Acknowledgments

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State University Museum, The Provincial Museum of Alberta, The Royal Ontario Museum, The Royal Saskatchewan Museum, The Science Museum of Minnesota, The Smithsonian National Museum of Natural History, The Stewart Hay Memorial Museum at the University of Manitoba, The University of Michigan Museum of Zoology, and The Yale Peabody Museum.

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CONNECTICUT WARBLER CLUTCHES FROM SASKATCHEWAN: UNCERTAIN STATUS AND AN ABNORMALLY PIGMENTED CLUTCH

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Connecticut Warblers are one of the most sought-after wood warblers by birders because of their shy habits and remote breeding habitat. Despite the interest by birders, Connecticut Warblers remain one of the least-known breeding birds in North America and have garnered little direct scientific study.²¹ This lack of knowledge and proximity to their breeding range while at the University of Manitoba led the senior author to begin an investigation into the breeding records of Connecticut Warblers in the prairie provinces. The three nest records from the Duck Mountain area of Saskatchewan reported in Houston and Anaka's recent book *Birds of Yorkton - Duck Mountain*¹¹ captured our interest, especially because one was reported to have been parasitized by a Brown-headed Cowbird. An investigation of these specimens in the Royal Saskatchewan Museum (RSM) revealed that these nests are even more noteworthy than Houston and Anaka initially reported.¹¹ Here we present additional details regarding the Connecticut Warbler nests from the Duck Mountain area to clarify the status of the records, investigate the first possible record of Brown-headed Cowbird parasitism on this species, and note an abnormally pigmented clutch.

Houston and Anaka reported that Fred W. Lahrman collected three nests of the Connecticut Warbler at Madge

Lake from the Saskatchewan Museum of Natural History's field camp on 29 June 1951.¹¹ The nests and eggs were identified by the following RSM catalogue numbers: #5511, #11667, and #11765. The contents of nest #5511 were listed as "with four young," whereas nests #11667 and #11765 were listed as containing "3 eggs and 1 cowbird egg."¹¹ An inspection of these clutches in the RSM collection revealed that some of the information reported by Houston and Anaka¹¹ conflicts with the specimens and museum records. The RSM's computer database lists all three of these nests and clutches, but only two clutches, #11667 and #11765, were located in the collection. All of the nests and clutch #5511 are missing from the museum collection. Strangely, only the contents of #11667 (two warbler eggs plus one cowbird egg; Fig. 1) seem to match the specimens, the museum's computer database, and Houston and Anaka's account.¹¹ The description of a clutch containing three eggs and one cowbird may be interpreted by some collectors/ornithologists to indicate a total of three eggs with one of the three being a cowbird egg. These discrepancies led us to examine the original documentation of these putative Connecticut Warbler nests and to carefully consider their validity as nest records for Saskatchewan.

Unfortunately, we could not find any original field notes, nest cards, or

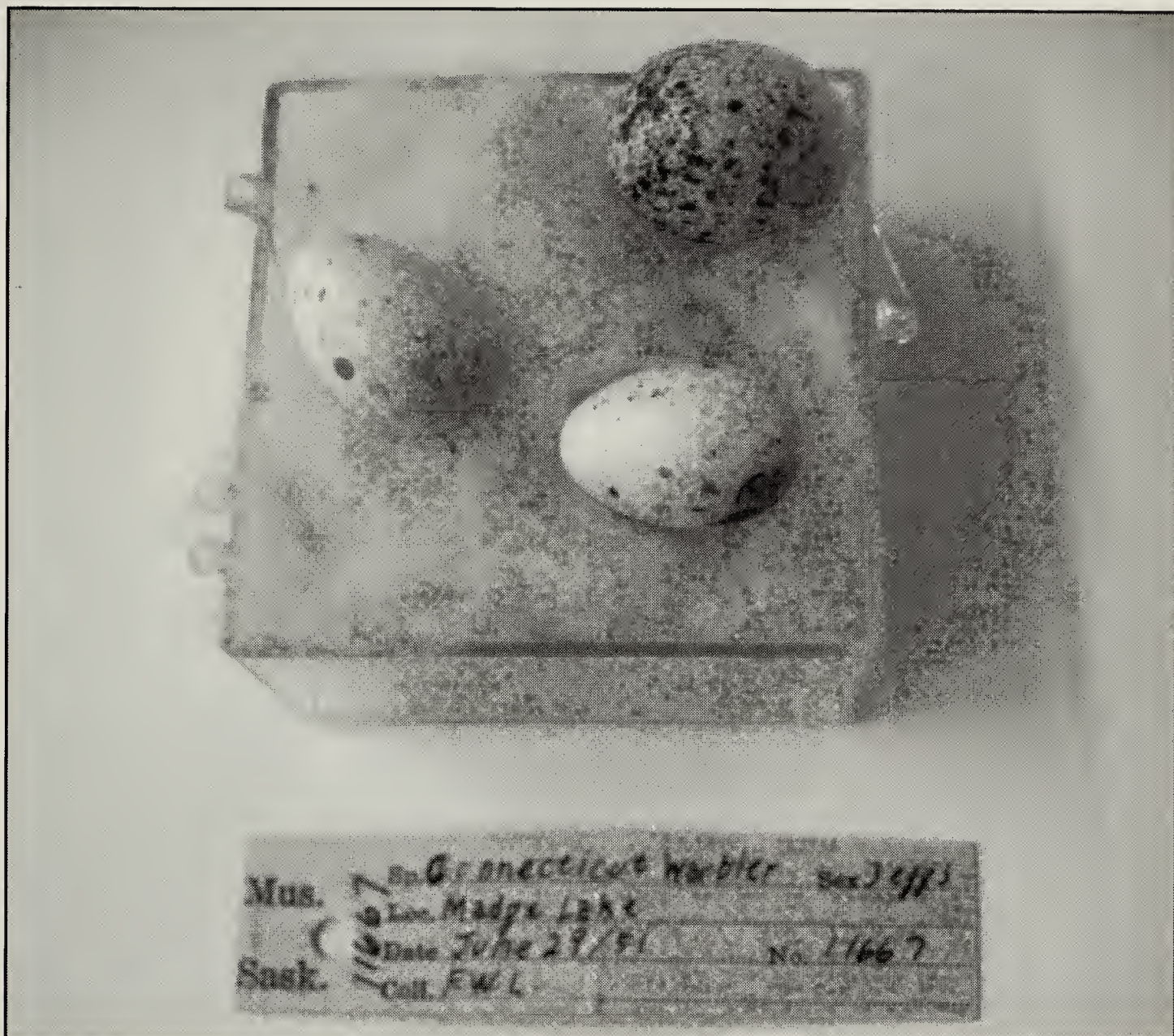


Figure 1. A putative Connecticut Warbler clutch (RSM #11667) with a cowbird egg collected 29 June 1951 by Fred W. Lahrman at Madge Lake, SK.

Mélanie F. Guigueno

summaries of field notes that included a description or mention of Connecticut Warbler nests from Madge Lake. In an unpublished copy of Lahrman's bird list and a bird list published in *Blue Jay* from Madge Lake in 1951, oddly there is no mention of Connecticut Warblers.² The only original published documentation of Connecticut Warbler nests in Saskatchewan was given in Bard's annual report for the museum that lists two Connecticut Warbler nests and eggs (#5428 and #5511 – each with 3 eggs) as acquisitions by the museum in 1951-1952.⁴ Examination of the museum's original hand-written accession catalogue and typed catalogue summary cards only add to the confusion. These records

both list nests #5428 and #5511 with three eggs and one cowbird egg and note that a female was collected with each nest. The records for nest #11765 show that the contents, "1 nest and 4 eggs of Connecticut Warbler," match the specimen (Fig. 2), although the date is incorrectly listed as 9 June 1951 on the catalogue summary card. However, the records for nest #11667 give its contents as "1 egg and nest of Connecticut Warbler (plus 2 cowbird eggs)." The specimen label for clutch #11667 also states a female was collected with this clutch. Houston and Anaka may have reported the contents of nests #11667 and #11765 from data associated with the catalogue summary cards for nests

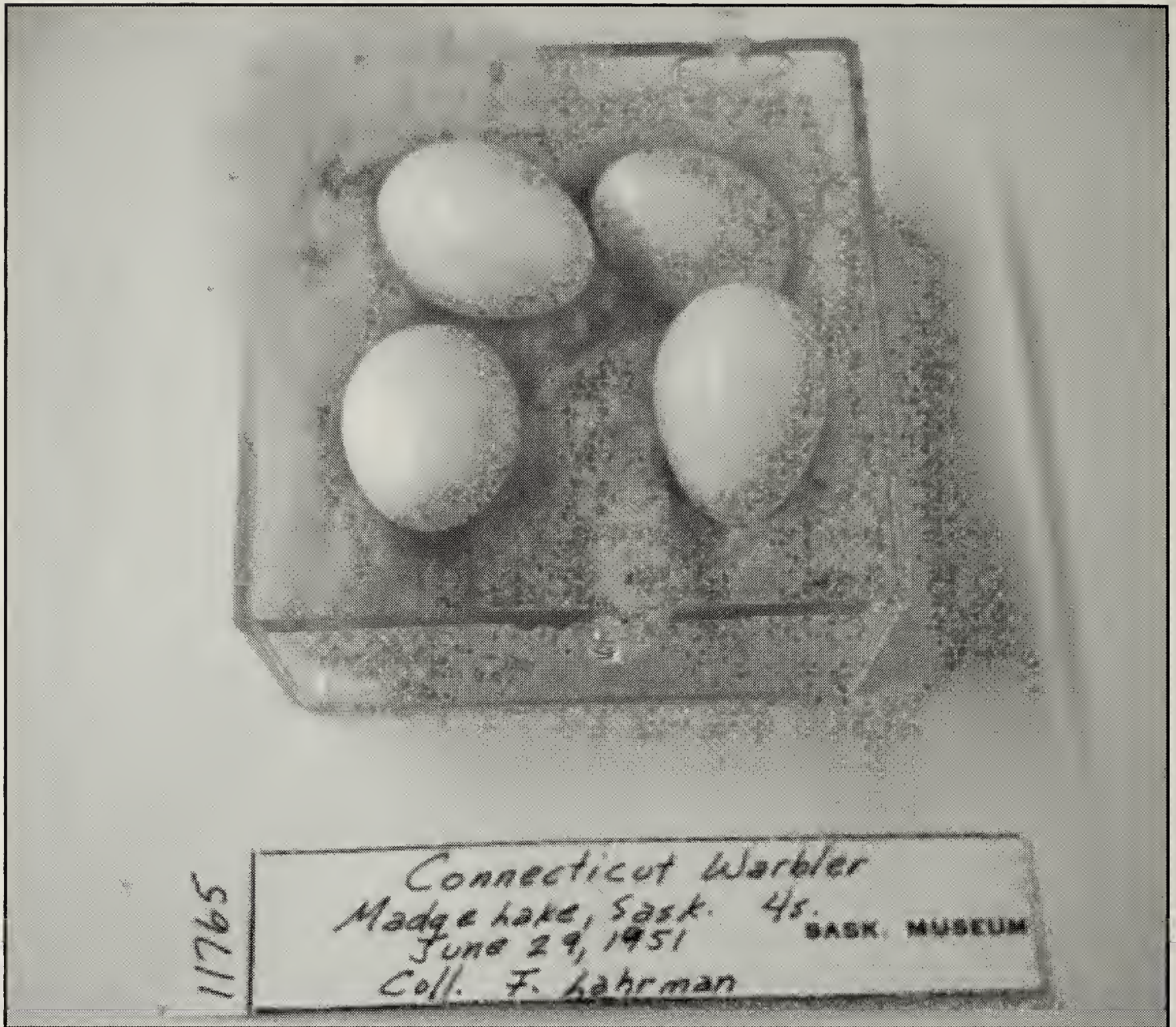


Figure 2. A putative Connecticut Warbler clutch (RSM #11765) with four immaculate white eggs collected 29 June 1951 by Fred W. Lahrman at Madge Lake, SK.

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#5428 and #5511.¹¹ The statement of nest #5511 containing four young in the Birds of Yorkton-Duck Mountain was an error (C. S. Houston, pers. comm.). There is no current record in the RSM's computer database or specimen collection of nest/clutch #5428.

It seems unlikely that there ever was a total of four Connecticut Warbler nests and/or clutches held in the museum (#s 5428, 5511, 11667, 11765). The lack of any recent documentation or of a specimen for nest #5428 and the lack of a specimen to match nest #5511 led us to the simplest explanation for the confusion surrounding these nests – there were only two Connecticut Warbler nests with

clutches (#5428 and #5511) collected at Madge Lake, and these were renumbered at a later date. All specimens reported as accessioned by the museum from 1951-1952 were given catalogue numbers in the 5000's, which supports a later renumbering. Thus, it appears that the two Connecticut Warbler clutches in the RSM collection today (Figs. 1 and 2) were most likely first accessioned as #5428 and #5511 in 1951 and were later renumbered as #11667 and #11765. This scenario is supported by C. S. Houston (pers. comm.) who also had examined the specimens and much of the information associated with them. Unfortunately, we cannot link the earlier specimen numbers to specific later numbers because the original

accession catalogue and catalogue cards report the same contents for the two nests. Because of the inconsistent reporting of the contents of these two nests, we must assume that the current contents are correct and that they likely have been incorrectly reported over the years. Similar transcription errors and confusion over specimens have occurred when other collections have been renumbered.¹²

If clutch #11667 contains a Brown-headed Cowbird egg, this would represent the first record of parasitism on the Connecticut Warbler.^{9, 16, 17} Clutch #11667 contains two warbler eggs and one cowbird egg (Fig. 1), which Lahrman collected along with the adult female warbler (as listed on the specimen label for the eggs). A museum skin of this female (#10261/A2113) is present in the RSM collection (Fig. 3, see inside front cover). This specimen was likely prepared in the field, given that it is a flat skin, but its high accession number (>5000) indicates that it was not officially added to the museum collection until a later date. More interestingly, this skin does not appear to be a Connecticut Warbler. The plumage does not clearly match that of a female Connecticut Warbler, and measurements confirm this. Lanyon and Bull developed a measurement formula, wing (flat) – tail length, that clearly separates the three similar warblers in the genus *Oporornis* (Connecticut, Mourning, and MacGillivray's warblers).¹⁵ A wing-tail difference of >18 mm indicates a Connecticut Warbler, whereas a wing-tail difference of 10-18 mm indicates a Mourning Warbler.¹⁵ Our measurements revealed a wing-tail difference of 12.5 mm (flat wing = 59.5 mm and tail = 47 mm), which is approximately the average difference for a female Mourning Warbler but well below the wing-tail difference of a female Connecticut Warbler. Clearly, this is the skin of a female Mourning Warbler.

The dimensions of the two warbler eggs average 19.7 mm × 13.4 mm, which is within the range reported for both Connecticut Warblers²¹ and Mourning Warblers.²⁰ Based on the evidence from the female collected with this nest, we conclude that this nest and eggs belong to a Mourning Warbler, not a Connecticut Warbler.

It is not surprising that this female and clutch were misidentified. Connecticut and Mourning Warbler females¹⁵ and eggs resemble each other closely,²¹ and the nest placement and breeding habitats of these species may be similar.^{20, 21} This misidentification is a good example of the importance of scientific collecting and proper documentation of distributional records.¹ The lack of a Connecticut Warbler in Lahrman's list of birds from Madge Lake may indicate that he was uncertain about the identification of the female warbler specimen and these nests. Lahrman was a well-regarded field naturalist²² who documented other rare bird observations, such as an extralimital nesting record of a Common Redpoll¹⁴ and a possible Eskimo Curlew sighting.¹³ If he were certain of this identification, he likely would have included it in his bird list and perhaps would have documented this first nest record for Saskatchewan in *Blue Jay*.

The cowbird egg in clutch #11667 clearly differs in appearance from the warbler eggs and matches the general colour and spot pattern of a cowbird egg. The dimensions of the egg measured 22.6 × 17.3 mm and are well within the normal range of those of a Brown-headed Cowbird egg (18.1 × 14.3 mm to 23.7 × 18.8 mm; S.G. Sealy, unpublished data) but are outside the upper size limit (21.3 × 15.6 mm) of a Connecticut or Mourning Warbler egg.^{20, 21} Thus, we conclude this is a cowbird egg and a record of cowbird parasitism on a Mourning Warbler nest.

Mourning Warblers are considered uncommon hosts of the Brown-headed Cowbird,⁸ but there are several records of parasitism on this warbler.^{8, 9}

The apparent misidentification of clutch #11667 necessitates a careful scrutiny of the other clutch from Madge Lake. Clutch #11765 contains four warbler eggs, all of which are white and have no other markings on them (Fig. 2). Connecticut Warbler eggs typically are white or cream-coloured with numerous spots in various shades of brown.²¹ There are no records of Connecticut Warblers laying immaculate white eggs,²¹ which also suggests this nest and eggs may have been incorrectly identified. Immaculate white eggs are rare in North American warblers. Most species of warblers lay white to off-white eggs with spots.³ Only two species regularly lay immaculate white eggs: Bachman's Warbler and Swainson's Warbler.³ Both species are ground-nesting warblers, like Connecticut Warblers, but are highly unlikely breeders in Saskatchewan (the ranges of both are in the southern United States, and Bachman's Warbler is believed to be extinct). The four eggs averaged 20.1 mm × 14.4 mm, which is well within the range of dimensions for Connecticut Warbler eggs,²¹ but above the upper size limit for Mourning Warbler eggs.²⁰ We know of no other ground-nesting bird in this region that typically lays immaculate white eggs that could be confused with those of a Connecticut Warbler. The egg measurements, however, match the relative size of a few species of ground nesters found in habitat similar to that used by the Connecticut Warbler in the Duck Mountain area. These include Northern Waterthrush, Lincoln's Sparrow, Swamp Sparrow, and Dark-eyed Junco. Of these possible alternate species, only Dark-eyed Juncos are known to occasionally lay immaculate white eggs.¹⁹ Other than egg dimensions and

habitat similarities, there is no evidence to suggest this clutch belongs to one of these species. The original accession catalogue and summary cards for the early Connecticut Warbler nest specimens (#s 5428 and 5511) indicate a female was collected with each nest and clutch. However, the specimen label for #11765 does not indicate that a female was collected with this clutch, and there is no other specimen of a female Connecticut Warbler from Madge Lake in the RSM collection. We believe the statement regarding the collection of a second female Connecticut Warbler is likely an error. Based on the misidentification of clutch #11667, abnormal pigmentation, and lack of additional evidence, we conclude that clutch #11765 is possibly that of a Connecticut Warbler, but cannot confirm its identity.

Pure white or immaculate eggs appearing as a single egg in a clutch or as entire clutches are uncommon among birds that typically lay pigmented eggs.¹⁰ Entire clutches of immaculate eggs appear to be quite rare among warblers that lay spotted eggs and have only been documented in Pine Warblers, Prothonotary Warblers, and Yellow-breasted Chats.^{5, 10, 18} There are also a few records of other warblers (Blue-winged Warblers, Nashville Warblers, Northern Parulas, American Redstarts) laying nearly immaculate white eggs.⁵ The loss of colour in pigmented eggs from domestic poultry has been attributed to infections, use of antibiotics, dehydration, and stress.⁷ However, the cause of pigment loss from the eggshells of wild birds is not clear. Based on the observation of a banded female Yellow-breasted Chat that laid normally spotted eggs in one year and immaculate white eggs in the next two years, McKibbin and Bishop suggested that some environmental trigger may have led to the loss of pigmentation from these warbler eggs.¹⁸ There is no

information associated with this putative Connecticut Warbler clutch that would allow us to speculate on the cause of pigment loss from these eggs.

In conclusion, we have clarified the status of the only putative records of Connecticut Warblers nesting in Saskatchewan. To the best of our knowledge, there were only two putative Connecticut Warbler nests found near Madge Lake and two nests and clutches deposited in the RSM. The nests are now missing, but two clutches remain in the museum collection (Figs. 1 and 2). Uncertainty surrounding the number of nests and their contents is most likely due to inaccurate record keeping over the years since they were collected. More importantly, one of these nests and clutches (#11667) was misidentified and is clearly that of a Mourning Warbler. There is a cowbird egg in this clutch, but this does not add a new host to those known for the Brown-headed Cowbird. The second clutch is abnormally pigmented for a Connecticut Warbler and there is no additional evidence to confirm its identification, which leads us to suggest this must be considered a possible but unusual and unconfirmed nest of the Connecticut Warbler. Specific identification of these eggs would require a genetic-based test on eggshell membrane material left behind when the contents were removed, such as the test used by Chilton and Sorenson to confirm the identity of the putative eggs of the extinct Labrador Duck.⁶ Based on our assessment of the current evidence surrounding these two Connecticut Warbler clutches, the status of Connecticut Warbler nest records in Saskatchewan should be considered possible but unconfirmed.

Acknowledgements

We thank Mélanie F. Guigueno for taking photographs of the eggs and C.

Stuart Houston and Robert W. Nero for comments on the manuscript. Houston also provided a copy of Lahrman's unpublished bird list from Madge Lake, copies of two annual reports published by the Saskatchewan Museum of Natural History in the 1950s, and additional copies of museum data. We also thank the Royal Saskatchewan Museum for access to the museum collection and data. Our studies of cowbirds and their hosts are funded by a grant from the Natural Sciences and Engineering Research Council of Canada to Spencer Sealy.

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60th anniversary of Nature Saskatchewan, Friday evening Gala dinner. The balloons in the background were part of a fundraising raffle for two Robert Bateman prints and two Robert Bateman books.



60th anniversary of Nature Saskatchewan: mist-netting at the Last Mountain Bird Observatory.



Trevor Herriot leading a tour at the Spring Meet



Lunch at the Last Mountain Regional Park between field trips

CELEBRATING THE 60TH ANNIVERSARY OF NATURE SASKATCHEWAN

GARY SEIB, Acting General Manager, Nature Saskatchewan, Regina

(Editors' note: this is a condensed version of the article by Gary Seib entitled "Celebrating our 60th", which appeared in the Fall 2009 issue of *Nature Views*.)

Naturalists from British Columbia, Alberta, Manitoba and Ontario joined many members of Nature Saskatchewan to celebrate our 60th Anniversary in Regina at the end of May 2009. The celebration began with a Gala dinner for 270 guests at the Conexus Arts Centre on Friday, May 29. Nature Canada Board member Doug Schmeiser announced that Robert Bateman would receive their highest honour, the Douglas Pimlott Award, for his many contributions to the cause of conservation. Board member Cliff Wallis then presented Nature Canada's 2009 Affiliate Award to Nature Saskatchewan.

On Saturday, registrants participated in an all-day field trip to the Last Mountain Lake National Wildlife Area and Migratory Bird Sanctuary. The first stop was Last Mountain Regional Park, and then members took a driving tour of the Sanctuary, a trip to the pelican colony, hiking tours of the Grassland Trail and the Wetland Trail, and the Last Mountain Bird Observatory (LMBO). The same tours were repeated in the afternoon, with the addition of a bus tour to the Stalwart National Wildlife Area. Over 200 gathered for a BBQ lunch at the regional park and the unveiling of a new interpretive sign at the LMBO.

The celebrations continued with an evening dinner at the Govan School Gym, featuring Stuart Houston reporting on his Turkey Vulture Tracking Program. He explained how the wing-tagging program evolved, since the vultures cannot be fitted with the traditional aluminum leg bands, and that by fitting some adults with GPS transmitters, we are able to track their migration paths to their wintering grounds.

At the Govan dinner, Cliff Wallis of Nature Canada made a presentation about the "Charles Labatiuk Nature Endowment Fund", and members of the Labatiuk family were present. Cliff stressed the importance of organizing your estate to fund your passions when you are no longer here.

At Sunday morning's AGM, members of our organizing committee and our partners at Nature Regina resolved that any profits from the 60th Anniversary Spring Meet would go to support the LMBO. As a result of your enthusiastic response, we've raised almost \$6000.00 for LMBO, and Nature Regina is now a Flight Plan Partner.

Congratulations to those who worked to organize our Spring Meet, and to all the volunteers involved. Many thanks to our Sponsors: SaskEnergy, Nature Canada and the Saskatchewan Watershed Authority.

1990 – 1999 (Volumes 48 through 57)

by
Teresa Dolman

Foreword

This 1990-1999 cumulative index is different in several respects from previous *Blue Jay* cumulative indexes. In terms of organization, it is composed of only two sub-indexes rather than up to 10 as in the last two cumulative indexes. There is an Author Index and a Subject Index. Also, it is a 10-year index (Volumes 48 to 57), which differs from the last three cumulative indexes which are 18-, 9- and 9-year indexes, respectively. In terms of content, several decisions were made to keep the index to a manageable length and which we hope will not inconvenience index users. Firstly, subspecies names are indexed only when the subspecies itself is at issue. Secondly, species presented in annotated lists are not indexed unless they are distinguished for reasons beyond their presence in the list. For the user of the index, this means that if you are looking for all references to, for example, Black-capped Chickadee, you must first look for that name under "Birds > Particular species" and also you must check the articles listed under "Birds > Counts, surveys & lists" for any listing of the Black-capped Chickadee. The subheadings under each species' name reflect the salient aspects presented in the articles, such as **B**reeding, Behaviour, Distribution, Colour variant, etc. In many articles, however, it is the very presence of the species which is being remarked upon (for example, records of rare or uncommon species) in which case the term Occurrence is used.

This index follows the O'Neil 1961-1969 Index in using Year–Page number–First letter of the month of issue (M/J/S/D) to reference an item. For example, *An Updated List of the Fishes of Saskatchewan*, which begins on page 160 of the September 1998 issue, is indexed as 1998:160S. The page number given is therefore that of the first page of the article in which the indexed subject can be found. In contrast, the page number given for photographs and maps is the exact page on which the photograph or map will be found. We feel that this system is somewhat easier to use than the Volume–Page number system used in the Bocking 1970-1978 Index, whereby the fish article above would be indexed as 56:160-165. Following both the O'Neil and Bocking indexes, entries under each author's name are arranged chronologically.

In the listings of "Particular species", common names are used for butterflies and for vertebrates (fish, amphibians, reptiles, birds and mammals) except in those cases where the scientific name only was provided in *Blue Jay* or where the scientific name is added for clarity. Butterfly names follow *Butterflies of Canada* by Layberry *et al.* (1998); fish names follow *Common and Scientific Names of Fishes from the United States and Canada* by Robins *et al.* (1991); amphibian and reptile names follow *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico* by Crother *et al.* (2001); bird names follow *Check-list of North American Birds* by the American Ornithologist's Union (7th edition and 49th supplement); and mammal names follow

Mammal Species of the World by Wilson and Reeder (2005). For plants, bacteria, fungi, lichens and all invertebrates other than butterflies, species are indexed under their scientific names (with common name, if given by the author, in parentheses) except when no scientific name was provided in *Blue Jay*, in which case they are indexed under the common name given by the author or illustrator. Unavoidably, this has led to instances where a single species may be listed in several ways. For example, *Calypso bulbosa* is indexed under its scientific name and under Fairy-slipper and Orchid, Calypso.

Abbreviations which are employed are: AB (Alberta), BC (British Columbia), CBC (Christmas Bird Count), CMC (Christmas Mammal Count) and SK (Saskatchewan).

All entries in the index were checked against the original entries in *Blue Jay*. Anna Leighton and Hilda Noton spent many hours at this task and for this I am very grateful. Despite their and my diligence, some errors no doubt remain and I take full responsibility for these; hopefully they are few and of little consequence. I especially acknowledge Anna's invaluable advice and suggestions; if it is a user-friendly index it is as much due to her efforts as to my own. Users of the index who find errors or who have suggestions on how the next cumulative index can be improved are encouraged to contact me or the Special Publications Editor at the Nature Saskatchewan office.

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60th anniversary of Nature Saskatchewan: Cliff Wallis, VP Nature Canada (on right), presenting the "Charles Labatiuk Nature Endowment Fund" to Bill &



Nature Saskatchewan Board. Back Row: left to right - Arlene Karpan, Donna Bruce, Trevor Herriot, Robert Warnock, Fraser Hunter, Clem Millar, Bill MacKenzie. Front Row: left to right - Jacqueline Bolton, Teresa Wilson, Lorne Scott, Suzanne Henry, Yvonne Cuttle, Mary Aird

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CWS staff Phil Taylor, Lois Vanthuyne, Kendrick Doll, Randi Edwards, and Kerry Hecker of the Last Mountain Lake National Wildlife Area in front of the new Last Mountain Bird Observatory sign. Not pictured are Ken Born (LML NWA) and Al Smith (LMBO).

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- Owl, Northern Saw-whet
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- Owl, Snowy
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- Partridge, Gray
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- Parula, Northern
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- Pelican, American White
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Figure 1. Pale gray morph Eastern Screech-Owl.

Christian Artuso



Figure 2. Gray morph Eastern Screech-Owl with rufous barring. For more on Eastern Screech-Owl colour morphs, see article by Artuso on page 131.

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